CDP-V925E

SERVICE MANUAL

AEP Model
UK Model

CDP-V925E is the COMPACT DISC PLAYER section in LBT-V925CD.

Model Name Using Similar Mechanism	CDP-M97
CD Mechanism Name	CDM9-5
Base Unit Name	BU-5C

SPECIFICATIONS

Power consumption	11 W
Dimensions	355 × 95 × 300 mm (w/h/d)
	(14 × $3^{3}/_{4}$ × $11^{4}/_{5}$ inches)
Weight	Approx. 3.7 kg (8 lb 3 oz)

MICROFILM

COMPACT DISC PLAYER

SONY®

SECTION 1
GENERAL

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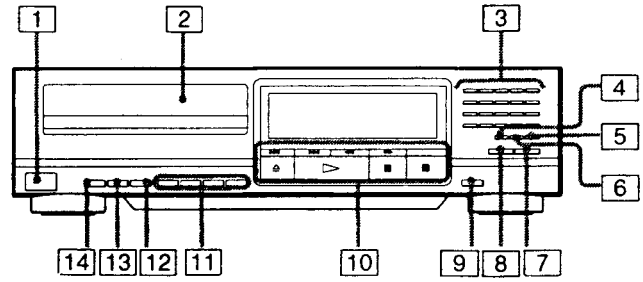
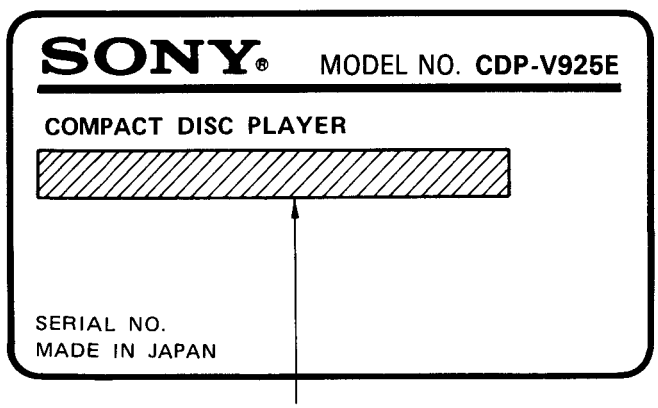
LOCATION OF CONTROLS



1 **POWER switch**
2 **Disc tray**
3 **Numeric buttons**
4 **>20 (over 20) button**
5 **CLEAR (program clear) button**
6 **CHECK (program check) button**
7 **FILE RECALL button**
8 **EDIT button**
9 **ERASE (memory erase) button**
10 **CD operation buttons**
11 **PLAY MODE buttons**
12 **REPEAT button**
13 **AUTO (automatic) SPACE button**
14 **TIME/MEMO button**

MODEL IDENTIFICATION

– Specifications Labels –



AEP, Italian model: AC: 220 V ~ 50/60 Hz 11 W
UK model: AC: 240 V ~ 50/60 Hz 11 W

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 2
SERVICING NOTES

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

1. Laser Diode Properties
   - Material: GaAlAs
   - Wavelength: 780 nm
   - Emission Duration: continuous
   - Laser Output: max. 44.6 μW*
     * This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optiocal Pick-up Block (including APC borad).

BESKYTTELSE AF ØJNE MOD LASERSTRÅLING UNDER SERVICE

I dette apparat anvendes laserlys. Derfor skal nedenstående instruktioner nøje følges under service.

Følg iøvrigt instruktionerne i servicemanualen.

ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

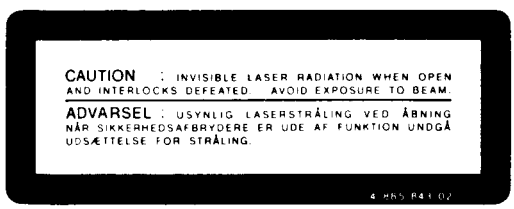
1. Laser-didoe data
   - Materiale: GaAlAs
   - Bølgelængde: 780 nm
   - Udstråling: Kontinuerlig
   - Laseroutput: Max. 0,4 mW*
     * Målt i 1,6 mm afstand fra overfladen af objektivlinsen på den optiske pick-up enhed.
   - Klassifikation: Klasse IIIb.

2. Adskil aldrig den optiske pick-up enhed under service, og juster ikke APC kredsløbet (Automatic Power Control). Hvis APC kredsløbet (incl. laserdioden) bryder ned, skal hele den optiske pick-up enhed (incl. APC printkortet) udskiftes.

LASER ADVARSEL MÆRKNING

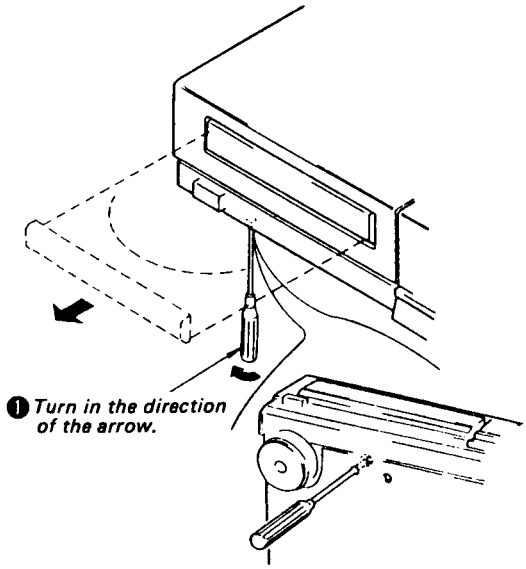
Følgende mærkning findes indvendig i apparatet:

1. Advarsel Mærkning


CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING.

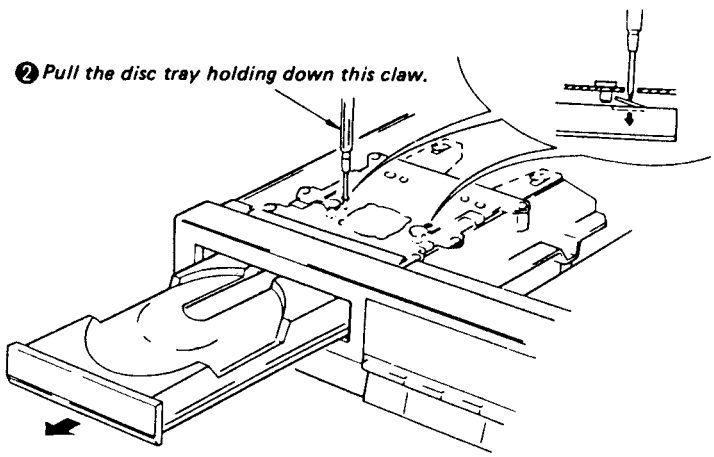
VAROITUS: Laite sisältää, laserdiodin, joka lähettää (näkymätöntä) silmille vaarallista lasersateilyä.

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF



Caution: When you work, keep the set horizontal.

DISC TRAY REMOVAL



NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

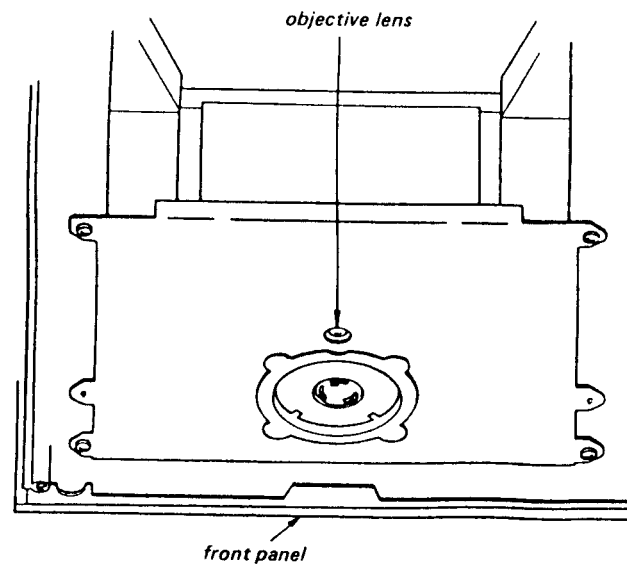
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SERCH OPERATION CHECK

1. Make POWER switch on with no disc inserted and disc table closed.
2. Confirm that the following operation is performed while observing the objecting lens.



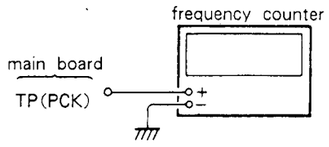
① Confirm that laser beam is spread.
② Up and down motion of the objective lens. (3 times)

SECTION 3
ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Use YEDS−18 disc (3−702−101−01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.

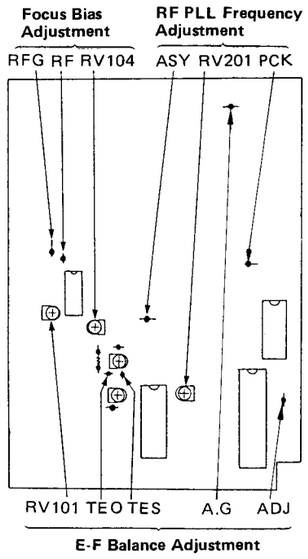
RF PLL Frequency Adjustment

Procedure :



1. Connect test point TP (ASY) to ground with jumper wire.
2. Turn POWER switch on.
3. Connect the frequency counter to test point TP (PCK).
4. Adjust RV201 so that the reading on frequency counter is 4.3218MHz±30kHz.
5. Remove lead wire connecting TP (ASY) and ground.
6. Put disc (YEDS−18) in and press ▷ button.
7. Confirm that the reading on frequency counter is 4.3218MHz.

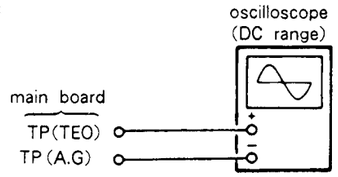
Adjustment Location : main board



E−F Balance Adjustment

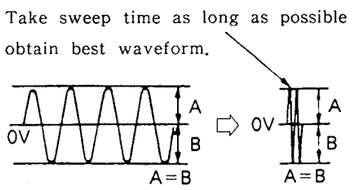
This adjustment should be made when replacing Optical Pick−up Block.

Procedure :



1. Connect test points TP (ADJ) and TP (TES) to ground with jumper wires.
2. Connect oscilloscope to test points TP (TEO) and TP (A. G).
3. Turn POWER switch on.
4. Put disc (YEDS−18) in and playback the 6th selection.
5. Adjust RV101 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0V.

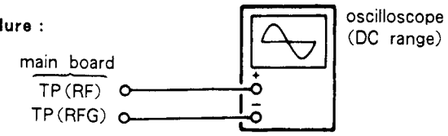
Note : Take sweep time as long as possible to obtain best waveform.



Focus Bias Adjustment

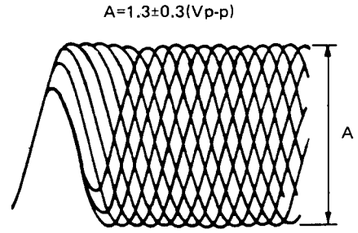
This adjustment should be made when replacing Optical Pick-up Block.

Procedure :



1. Connect oscilloscope to test points TP(RF) and TP (RF G).
2. Turn POWER switch on.
3. Put disc (YEDS−18) in and playback the 6th selection.
4. Adjust RV104 for an optimum waveform eye pattern or so that the peak is maximum. Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.

● RF Signal Reference Waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

REFERENCE

Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick - up follow - up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

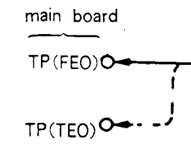
- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

Symptoms \ Gain	Focus	Tracking
● The time until music starts becomes longer for STOP →▷PLAY or automatic selection (⏮ ⏭ buttons pressed. (Normally takes about 2 seconds.)	low	low or high
● Music does not start and disc continues to rotate for STOP→▷PLAY or auto - matic selection (⏮ ⏭ buttons pressed.)	−	low
● Sound is interrupted during PLAY. Or time counter display stops progressing.	−	low
● More poise during 2-axis device oper - ation.	high	high

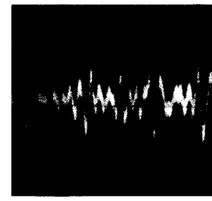
The following is a
−Simple Adjustment−

Note : Since exact a
remember the
performing the
simple adjustme
the controls to

Procedure :

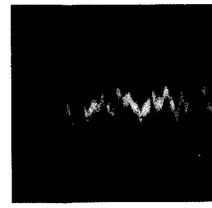


1. Keep the set horiz
   (If the set is not h
   performed due to t
2. Insert disc (YEDS−
3. Connect oscilloscop
4. Adjust RV102 so
   the figure below.

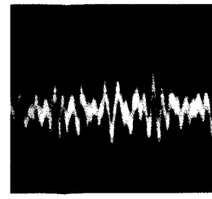


● Incorrent Example
adjusted waveform

low focus



high focus



ing Optical

to ground

EO) and

n selection.
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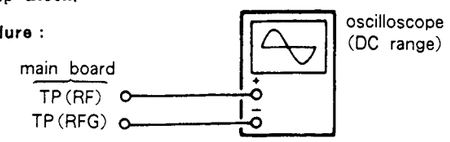
ion to 0V.

e to

Focus Bias Adjustment

This adjustment should be made when replacing Optical Pick-up Block.

Procedure :



1. Connect oscilloscope to test points TP(RF) and TP (RF G).
2. Turn POWER switch on.
3. Put disc (YEDS-18) in and playback the 6th selection.
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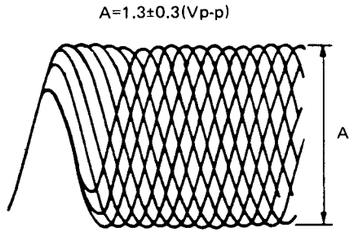

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REFERENCE

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However, as these reciprocate, the adjustment is at the point where both are satisfied.

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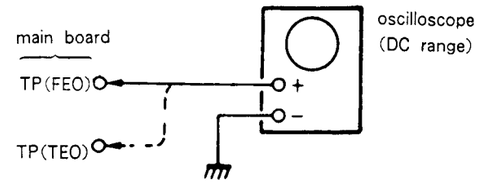
● Music does not start and disc continues to rotate for STOP→▷PLAY or auto - matic selection (⏮ ⏭ buttons pressed.)	–	low
● Sound is interrupted during PLAY. Or time counter display stops progressing.	–	low
● More poise during 2-axis device oper - ation.	high	high

The following is a simple adjustment method.

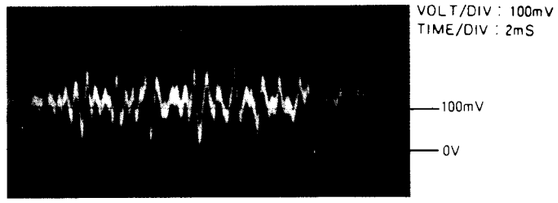
-Simple Adjustment-

Note : Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure :

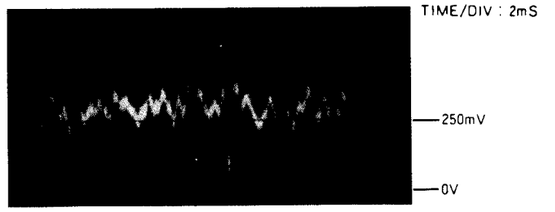


1. Keep the set horizontal.
   (If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
2. Insert disc (YEDS-18) playback the 6th selection.
3. Connect oscilloscope to main board TP(FEO).
4. Adjust RV102 so that the waveform is as shown in the figure below. (focus gain adjustment)

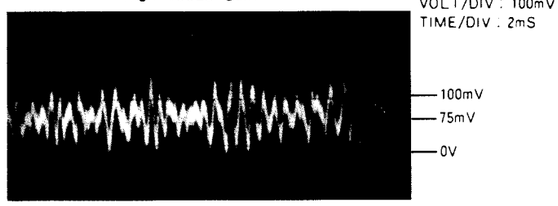


● Incorrent Examples (DC level changes more than on adjusted waveform)

low focus gain



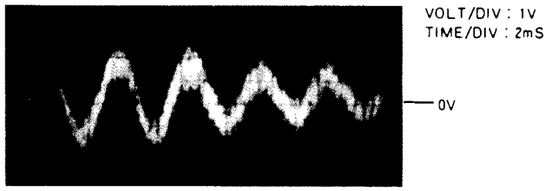
high focus gain



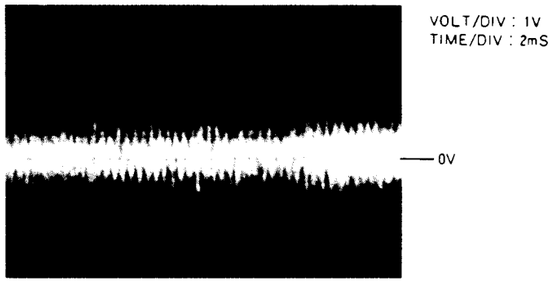
5. Connect oscilloscope to main board TP(TEO).
6. Adjust RV104 so that the waveform is as shown in the figure below. (tracking gain adjustment)

● Incorrect Examples (fundamental wave appears)

low tracking gain

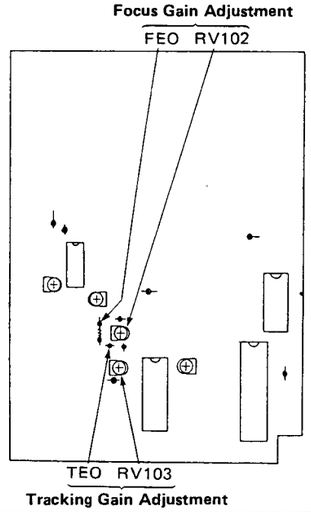


high tracking gain
(higher fundamental wave than for low gain)



Adjustment Location : main board

Focus Gain Adjustment

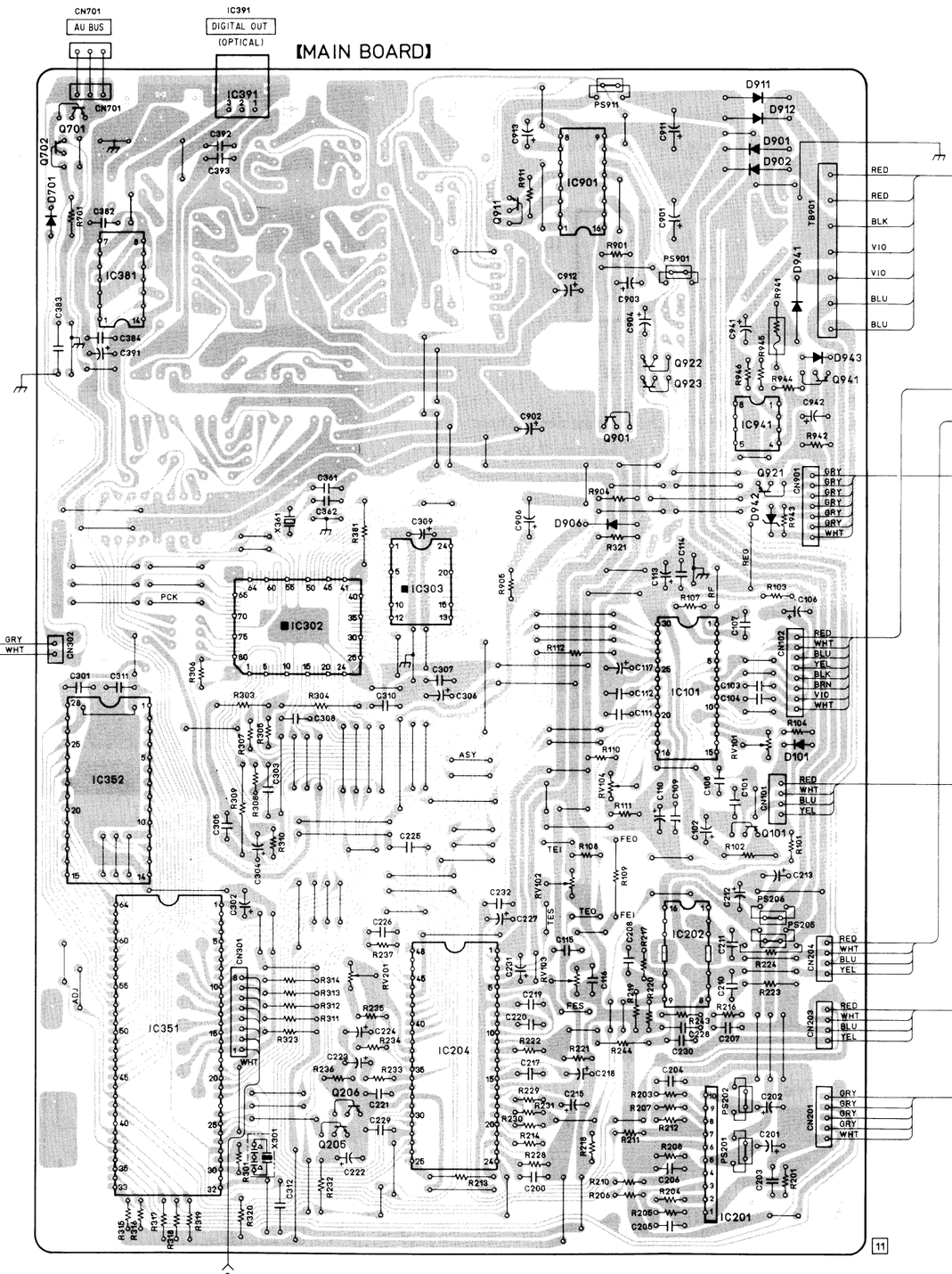


Tracking Gain Adjustment

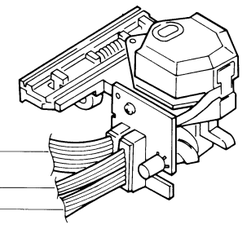
SECTION 4 DIAGRAMS

4-1. PRINTED WIRING BOARDS • See page 15 for Semiconductor Lead Layouts.

【MAIN BOARD】

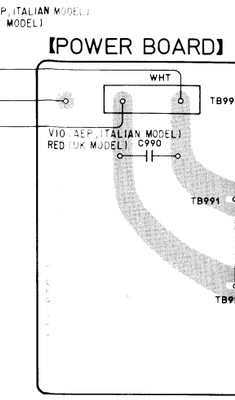


OPTICAL PICK UP BLOCK (KSS-150A)

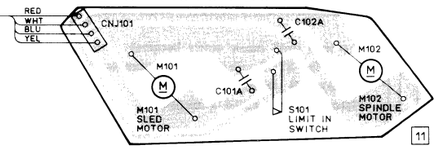


T990
POWER TRANSFORMER

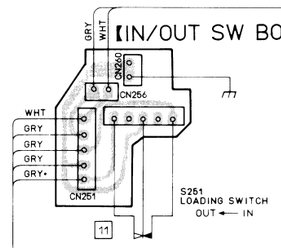
【POWER BOARD】



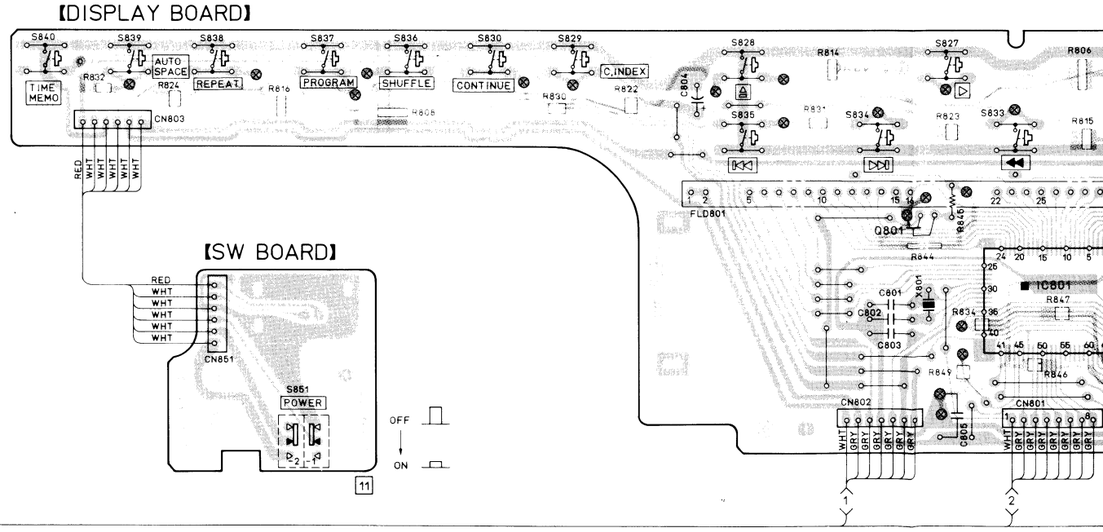
【SL/SP MOTOR BOARD】



【IN/OUT SW BOARD】



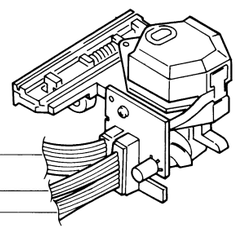
【DISPLAY BOARD】



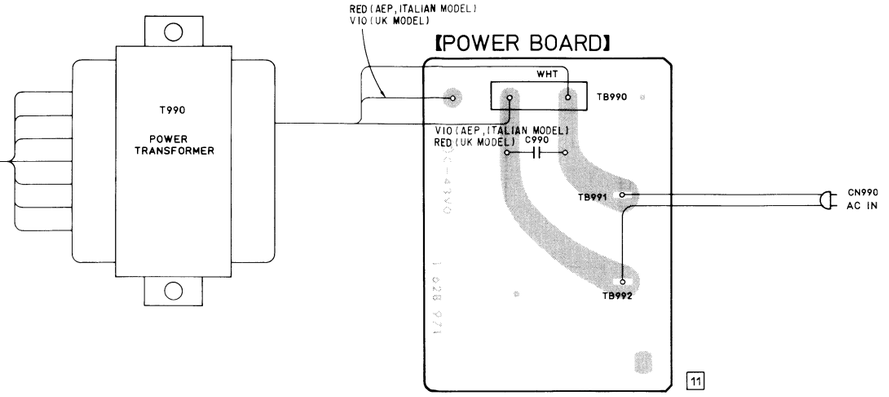
【SW BOARD】

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ○—●—○ : Jumper wire connected to the ground pattern on the component side.
- ▒▒ : Pattern on the side which is seen.
- ▒▒ : Pattern of the rear side.
- [ ] : Printed resistors extracted from the rear side.
- ⊗ : Through hole.

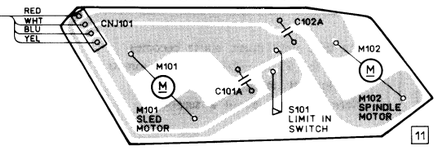
OPTICAL PICK UP BLOCK (KSS-150A)



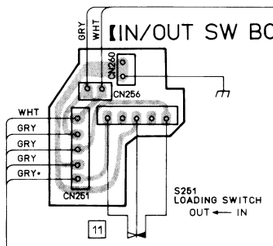
【POWER BOARD】



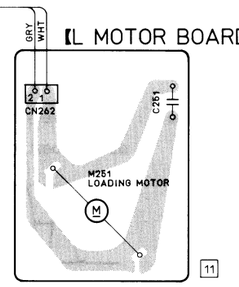
【SL/SP MOTOR BOARD】



【IN/OUT SW BOARD】

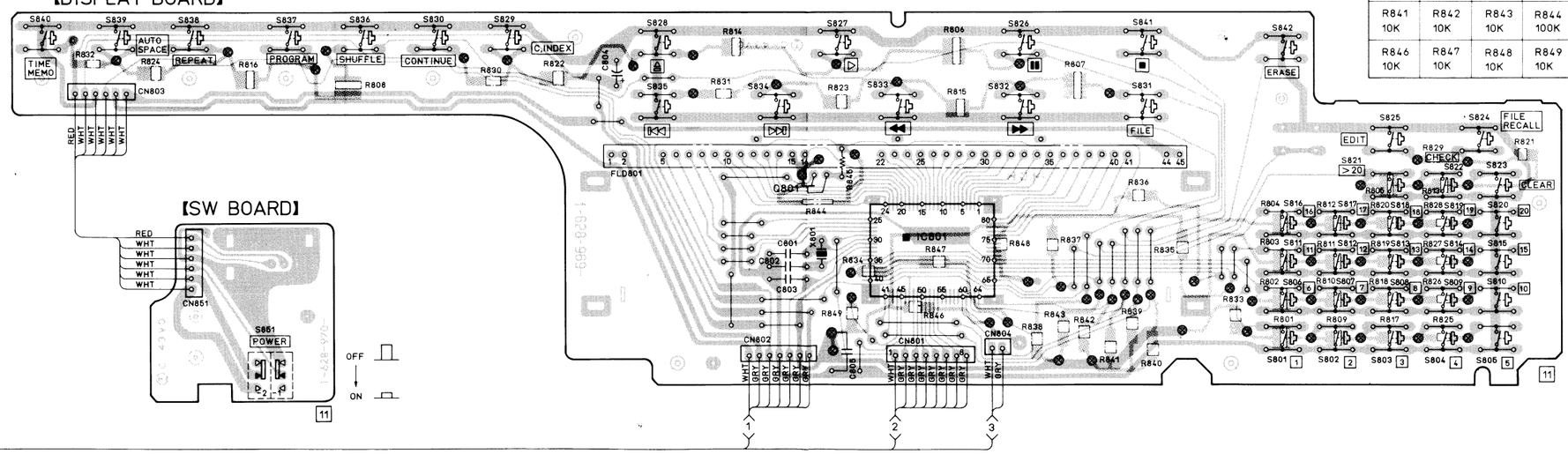


【L MOTOR BOARD】



R801 2.67K	R802 2.67K	R803 2.67K	R804 2.67K	R805 2.67K
R806 2.67K	R807 2.67K	R808 2.67K	R809 3.97K	R810 3.97K
R811 3.97K	R812 3.97K	R813 3.97K	R814 3.97K	R815 3.97K
R816 3.97K	R817 6.89K	R818 6.89K	R819 6.89K	R820 6.89K
R821 6.89K	R822 6.89K	R823 6.89K	R824 6.89K	R825 18.5K
R826 18.5K	R827 18.5K	R828 18.5K	R829 18.5K	R830 18.5K
R831 18.5K	R832 18.5K	R833 10K	R834 10K	R835 10K
R836 10K	R837 10K	R838 10K	R839 10K	R840 10K
R841 10K	R842 10K	R843 10K	R844 100K	
R846 10K	R847 10K	R848 10K	R849 10K	

【DISPLAY BOARD】



【SW BOARD】

Ref. No.	Location
D101	G-7
D701	C-1
D901	B-7
D902	B-7
D906	E-6
D911	B-7
D912	B-7
D941	C-7
D942	E-7
D943	D-7
IC101	F-6
IC201	J-7
IC202	H-6
IC204	I-5
IC302	F-3
IC303	E-4
IC351	I-2
IC352	G-2
IC381	C-2
IC391	B-3
IC801	I-17
IC901	B-6
IC941	D-7
Q101	G-7
Q205	J-4
Q206	I-4
Q701	B-2
Q702	B-1
Q801	I-16
Q901	D-6
Q911	C-5
Q921	E-7
Q922	D-6
Q923	D-6
Q941	D-7

4-2. SCHEMATIC DIAGRAM

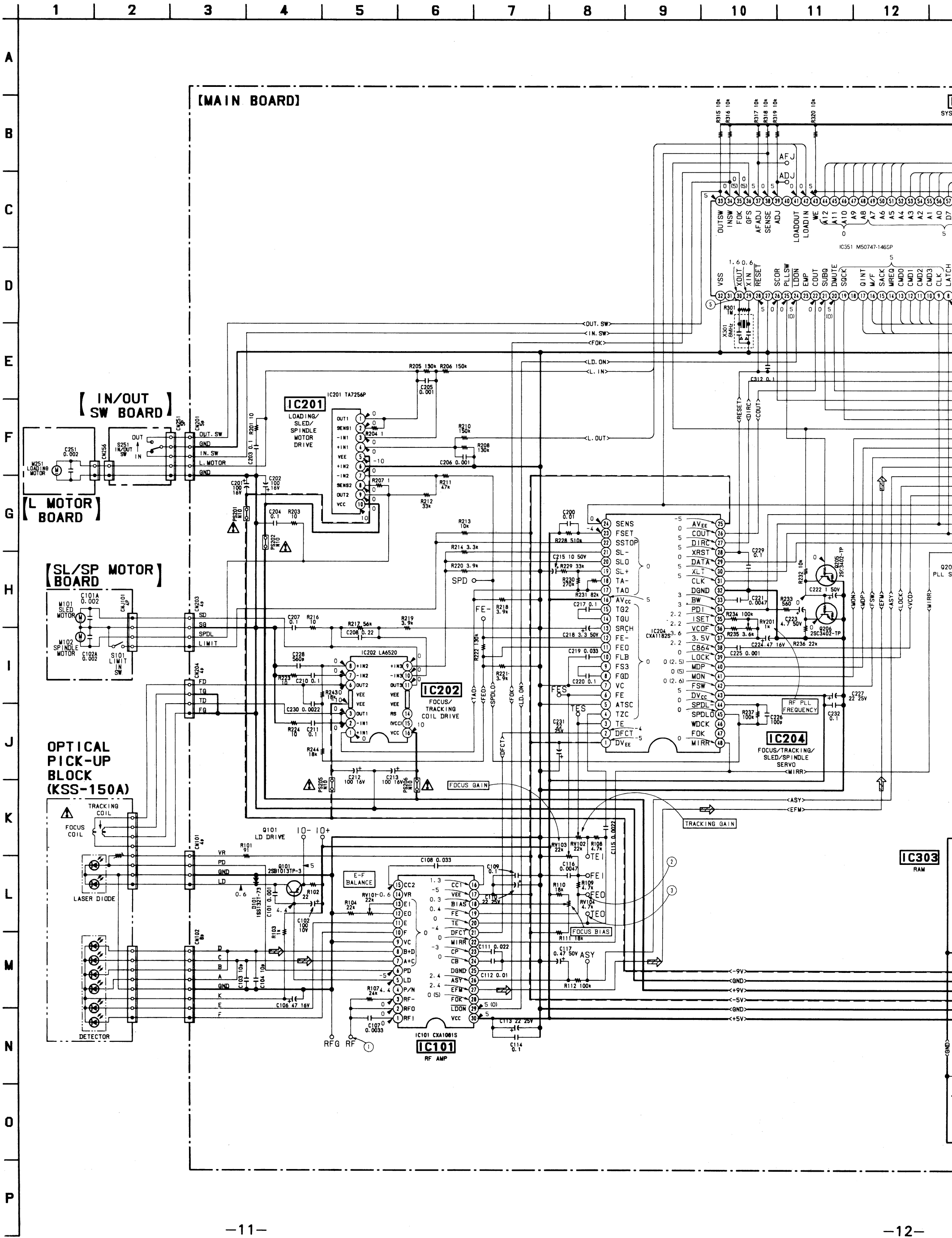
- **See page 15–17 for IC Block Diagrams.**

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- Resistors specified 1/32 W, 1/64 W are printed resistors.
- △ : internal component.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

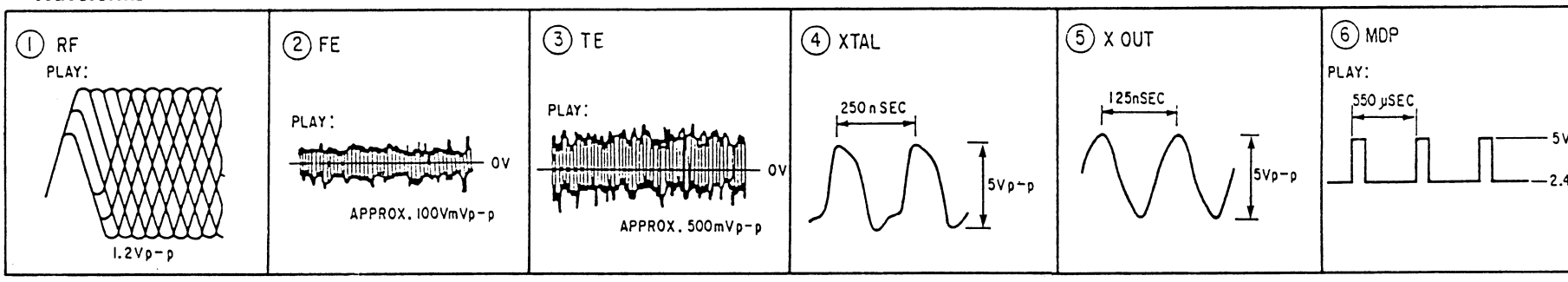
- ▬▬ : B+ Line
- ▬ ▬ : B– Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : PLAY
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD



with a oscilloscope.
nay be noted due to normal produc-

r to waveforms.

• Waveforms



12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24

IC351
SYSTEM CONTROL
IC352
RAM
AU BUS
CN302 2p
CN701 3p
CN901 7p
Q921, Q922, Q923
POWER SW
Q921 2SA1345-TP
Q922 2SC3399-TP
Q923 2SC3399-TP
IC901
B+/B- REG CONTROL
Q911
-5V REG
Q911 2SD1913SA-R
PS911 N38
IC941
REG CONTROL
Q901
+5V REG
Q901 2SB1274-RS
PS901 N38
Q941
-30V REG
Q941 2SB1014TP-3
D942 2SB1014TP-3
HZS9B1LT2
D943 1SS132T-73
D701 1SS132T-73
Q701 2SC3402-TP
R701 470k
Q702 2SA1345-TP
Q701, Q702
SYNC SWITCH
D906 1SS132T-73
IC901 M5290P-16
IC941 M5219P
Q205, Q206
PLL SWITCHING
IC302
IC302 CXD1125Q
DIGITAL SIGNAL PROCESSOR
IC303
RAM
IC303 LC9600P-144
IC381
DIGITAL DRIVE
IC381 MC74HCU04N
IC391
OPTICAL OUT
IC391 GP1F31T
DIGITAL OUT
(OPTICAL)
M50747-146SP
IC352 LC9600R-183
X361 16.9344M
C311 0.1
C308 0.1
C303 0.01
C304 0.47 50V
C305 0.033
C309 22 25V
C362 20p
C361 20p
C391 22 25V
C384 0.1
C382 220p
C383 0.1
C392 0.1
R321 10k
R381 680
R323 10k
R311 10k
R312 10k
R313 10k
R314 10k
R302 100k
R304 100k
R305 10k
R306 100k
R307 10k
R308 1k
R309 22k
R310 1W
R905 100
R904 2.7k
C906 47000 5.5V
C912 1000 10V
C902 2200 10V
C904 10 50V
C903 10 50V
C913 4.7 50V
R911 4.7k
R901 4.7k
C911 4700 16V
C901 4700 16V
R946 4.7k
R942 22k
C942 100 35V
R945 27k
R944 1k
R943 10k
C941 100 50V
R941 10
D941 10E2M-TA2
C927 100 35V
R927 22k
R925 27k
R924 1k
R923 10k
C923 100 50V
R921 10
D921 10E2M-TA2
C907 100 35V
R907 22k
R905 27k
R904 1k
R903 10k
C903 100 50V
R901 10
D901 10E2M-TA2
C917 100 35V
R917 22k
R915 27k
R914 1k
R913 10k
C913 100 50V
R911 10
D911

⑤ X OUT	⑥ MDP	⑦ MDS	⑧ VCO O	⑨ VCO I	⑩ XTAI
125nSEC, 5Vp-p	PLAY: 550 µSEC, 5V, 2.4V	PLAY: 5V, 0V	95nSEC, 3.1V, 1.4V	95nSEC, 4.5V, 0.6V	59n SEC, 2Vp-p

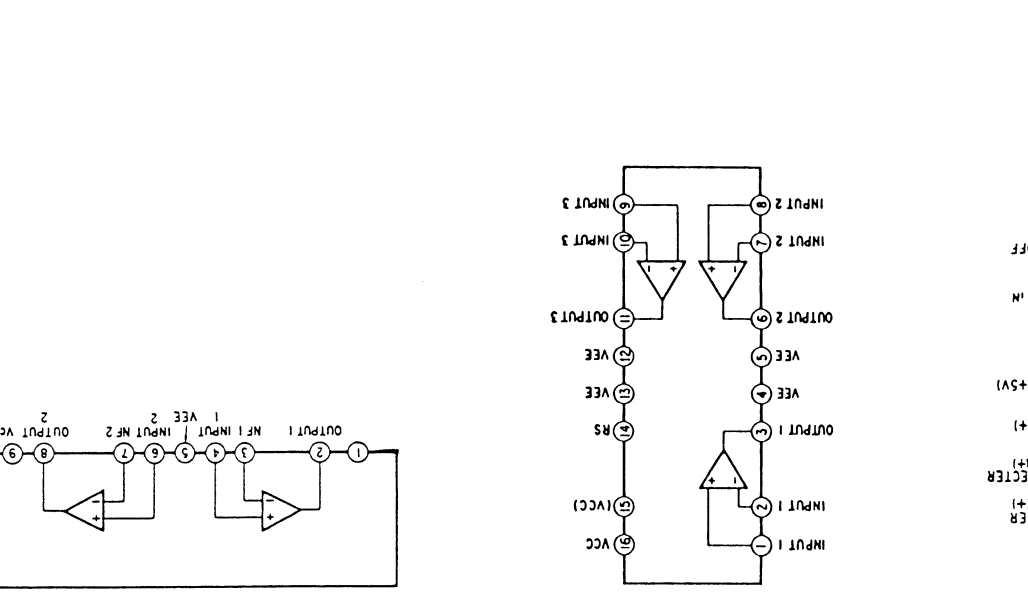
21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33

【POWER BOARD】

【SW BOARD】

【DISPLAY BOARD】

4-3. CIRCUIT BOARDS LOCATION



- **Semiconductor Lead Layouts**

CXD1125Q
CXP5058H-192Q

DTA114ES
DTC144ES

2SB1274
2SD1913SA

HZS9B-2L
1SS202-1

GP1F31T

2SB1014

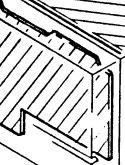
2SC2021

10E2N

TA7256P

2SB1068K

2SD1685

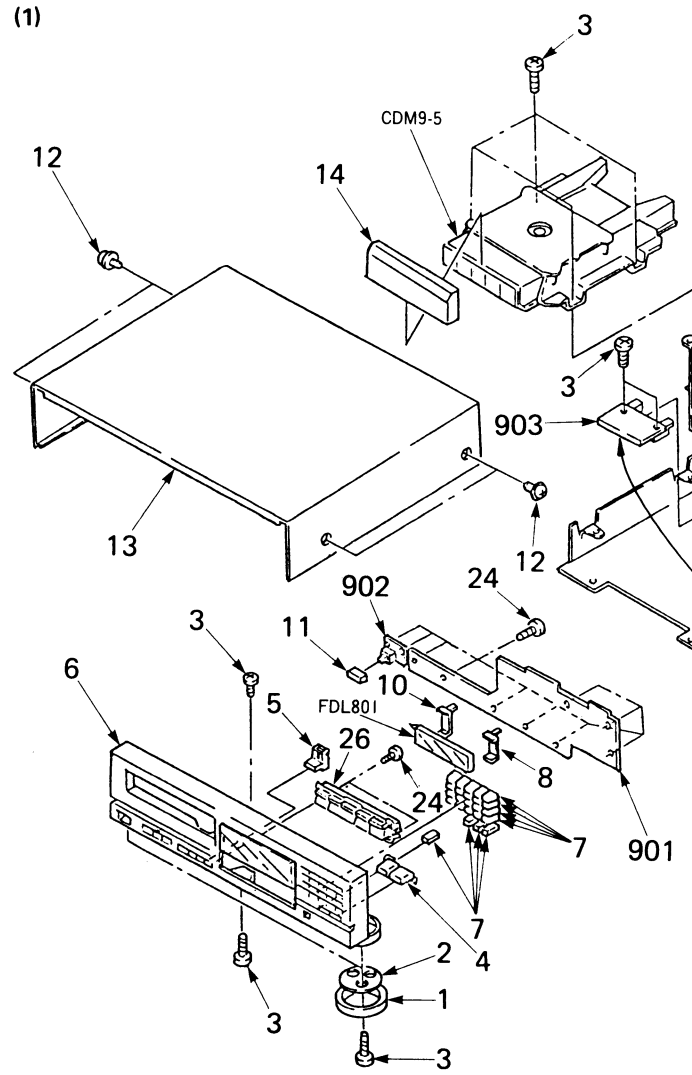


SEC
EXPLOD

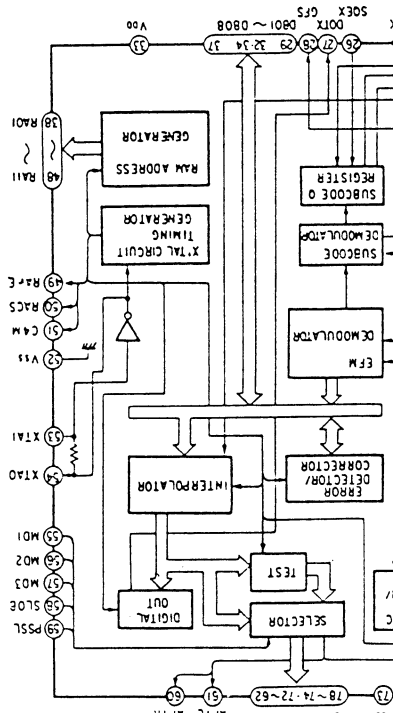
NOTE:

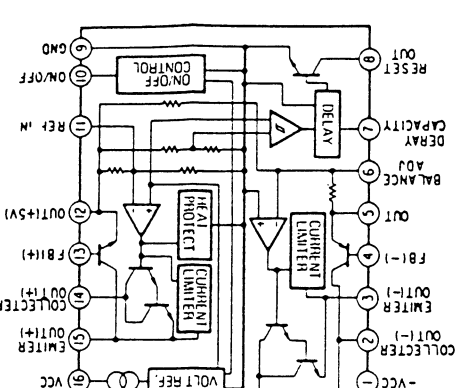
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standa number suffix ferent from t components us
- Color Indicati Example:
  (RED) . . . KN
  ↑
  Cabinet's Col

(1)



Ref.No	Part No.	Description	Remark
1	X-4917-252-1	PLATE (LEG) ASSY, ORNAMENTAL	
2	4-928-401-01	FELT	
3	7-682-547-04	SCREW +BVTT 3X6 (S)	
4	4-922-991-11	BUTTON (FD)	
5	4-922-676-01	BUTTON (ID)	
6	X-4917-574-1	PANEL ASSY, FRONT	
7	4-922-678-11	BUTTON (MC)	
8	*4-922-523-01	HOLDER (RIGHT)	
9	7-682-548-04	SCREW +BVTT 3X8 (S)	
10	*4-922-524-01	HOLDER (LEFT)	
11	4-922-903-01	BUTTON (PW)	
12	3-704-366-01	SCREW (CASE) (M3X8)	
13	4-919-376-31	CASE	
14	4-922-990-01	PANEL (LOADING)	
15	*4-922-525-01	HEAT SINK	
16	*4-854-790-00	HEAT SINK	
17	7-682-547-09	SCREW B 3X6	
18	*3-703-244-00	BUSHING (2104), CORD	
19	*4-922-911-01	CHASSIS (R)	
20	*4-922-632-01	SHEET, INSULATING	



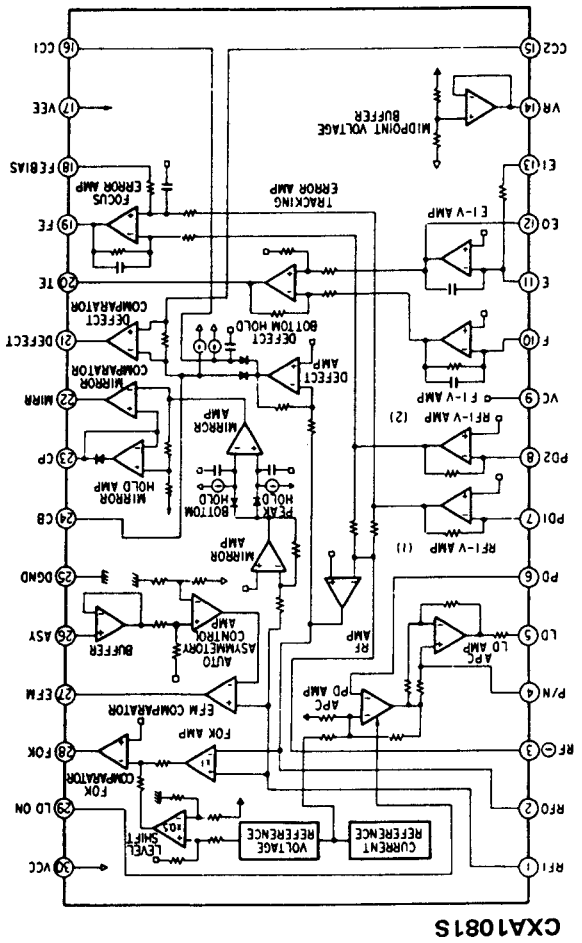


M5290P-16

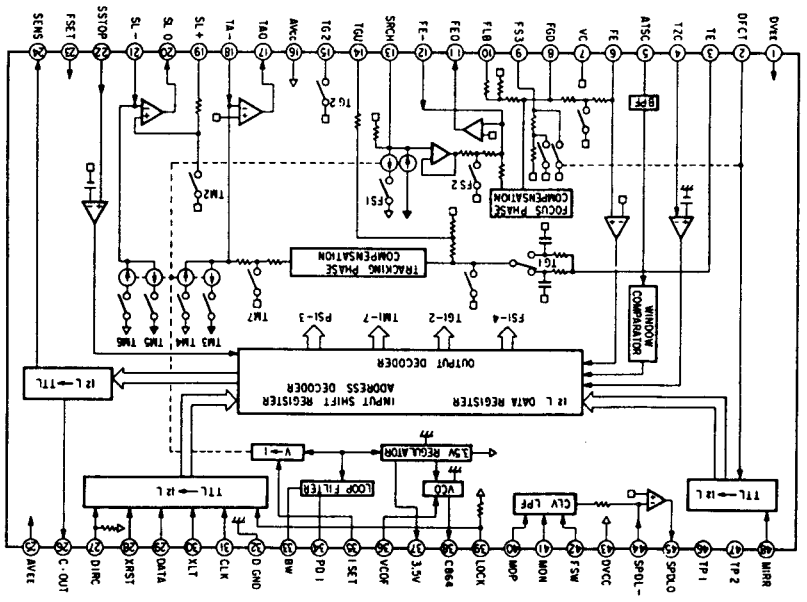
LA6520

TA7256P

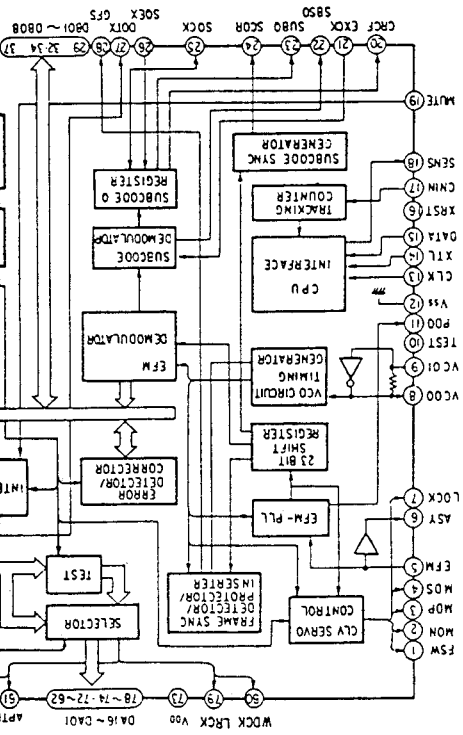
CXA1081S



CXA1825



CXD1125Q

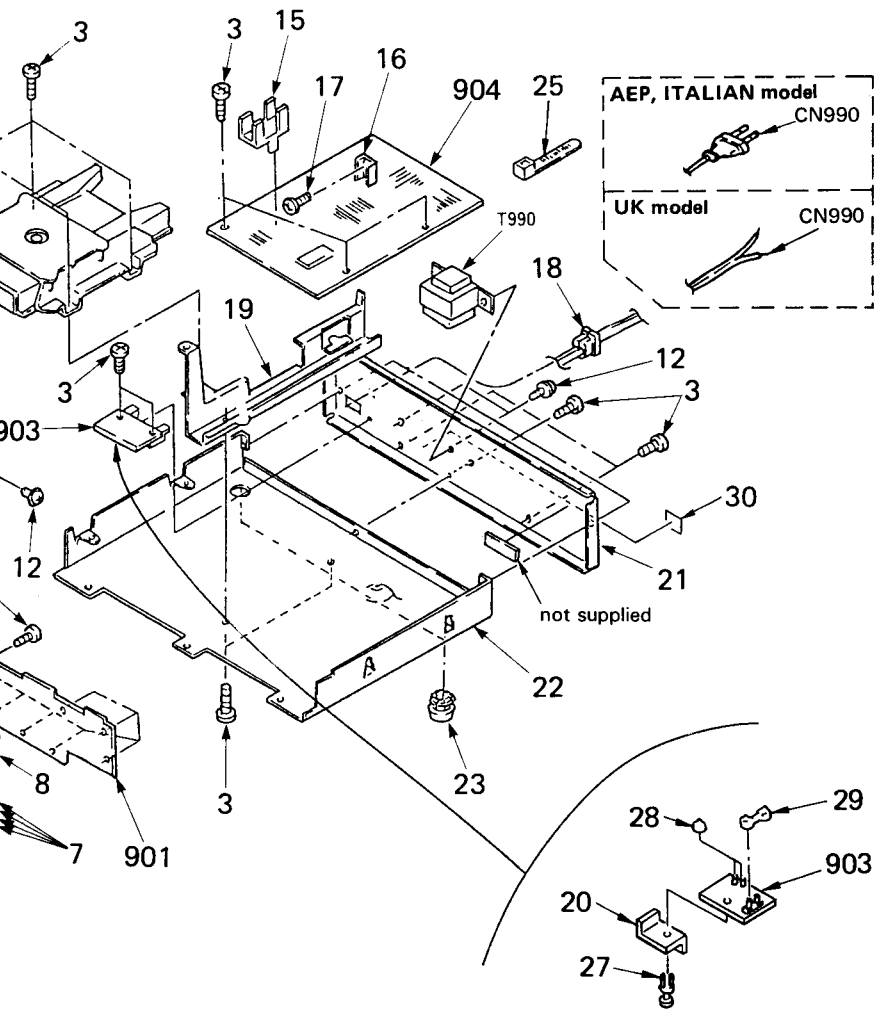


Diagrams

SECTION 5
EXPLODED VIEWS

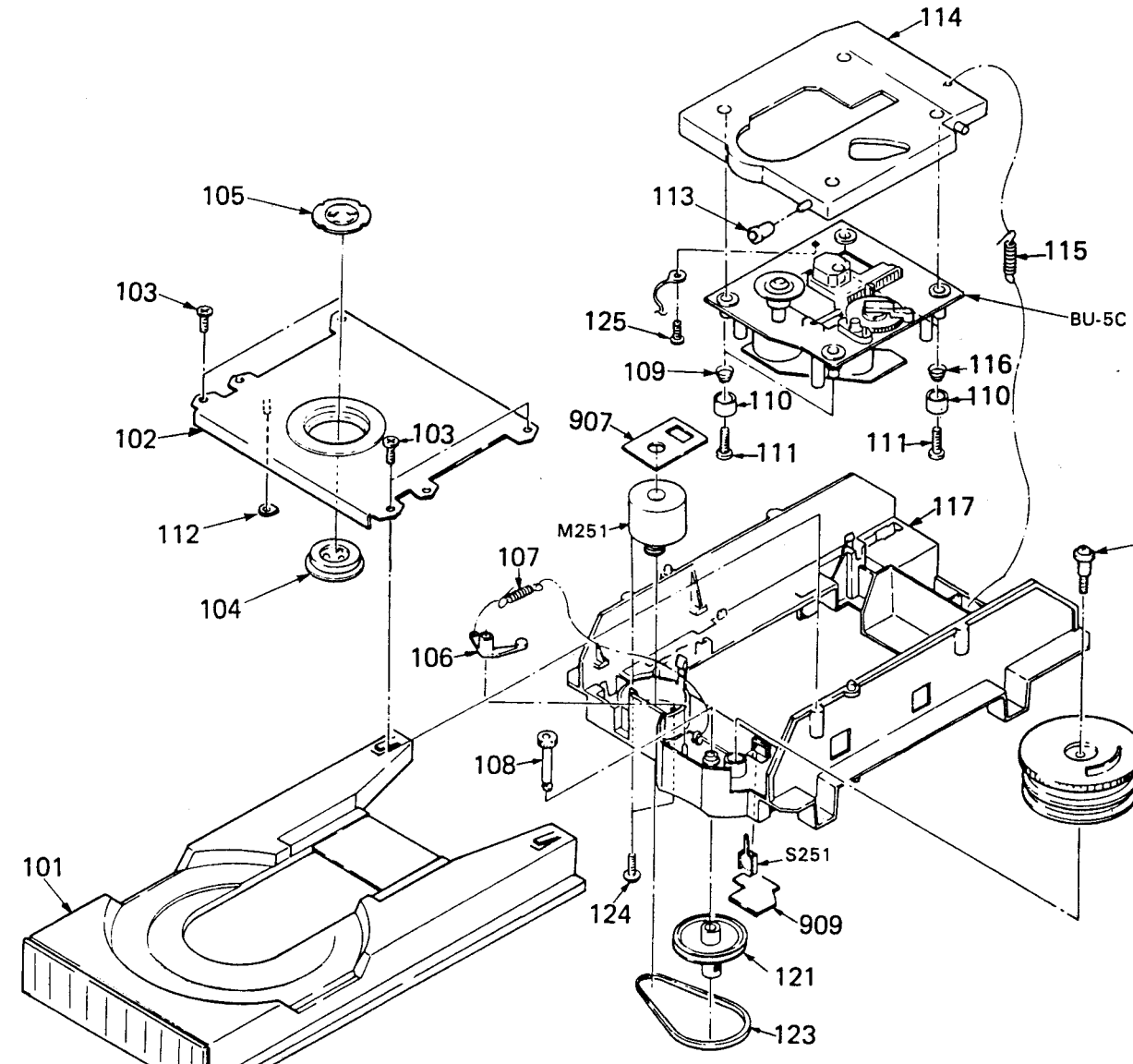
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

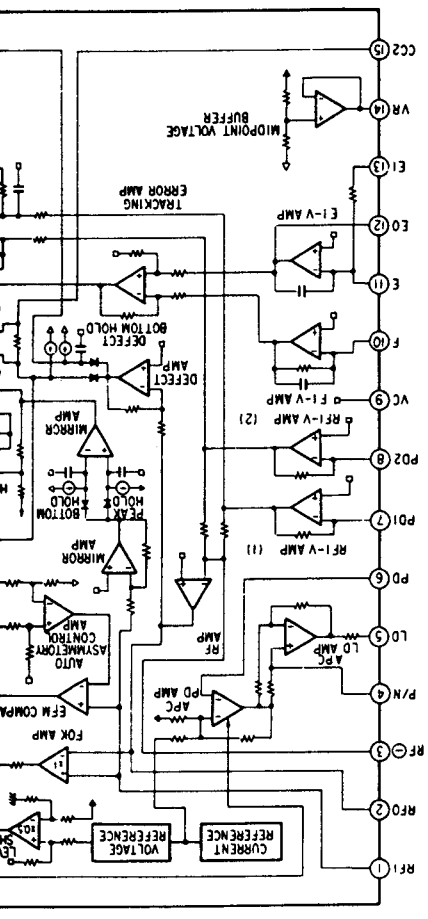


Ref.No	Part No.	Description	Remark
21	*4-922-670-71	(AEP, Italian). . . .PANEL, BACK	
	*4-922-670-81	(UK). . . .PANEL, BACK	
22	*4-921-903-51	CHASSIS	
23	4-931-169-01	FOOT	
24	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
25	3-655-653-21	BAND (TAITON), BINDING	
26	X-4917-556-1	BUTTON (P) ASSY	
27	3-531-576-11	RIVET	
28	*4-912-962-01	COVER (1P), TERMINAL	
29	*4-912-963-01	COVER (2P), TERMINAL	
30	*4-885-838-00	LABEL, CLASS 1	
901	*1-628-969-11	PC BOARD, DISPLAY (PRC)	
902	*1-628-970-11	PC BOARD, SWITCH (PRC)	
903	*1-628-971-11	PC BOARD, POWER (PRC)	
904	A-4651-227-A	MOUNTED PCB, MAIN	
CN990	⚠ 1-555-795-00	(AEP, Italian). . . .CORD, POWER, EULO PLUG	
	⚠ 1-556-562-11	(UK). . . .CORD, POWER	
FLD801	1-519-481-11	INDICATOR TUBE, FLUORESCENT	
T990	⚠ 1-449-558-11	TRANSFORMER, POWER	

(2) MD Section (CDM9-5)



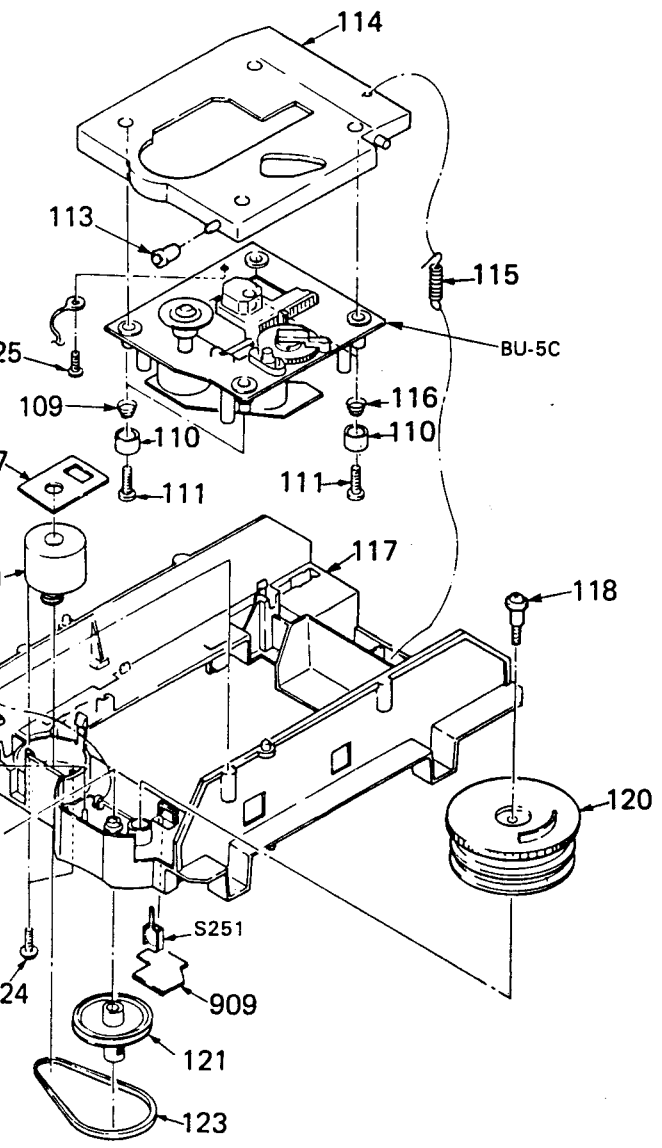
No.	Part No.	Description	Remarks
101	*4-922-515-01	TABLE, DISK	
102	*4-922-510-01	REINFORCEMENT (MG)	
103	7-685-546-11	SCREW +BTP 3X8 TYPE2 N-S	
104	A-4665-024-A	MAGNET ASSY	
105	*4-918-679-04	PULLEY, PRESS	
106	4-917-519-01	LEVER, SET	
107	4-917-514-01	SPRING, TENSION	
108	4-922-508-01	GEAR (DRIVING)	
109	4-917-541-01	SPRING (B)	
110	4-917-508-01	HOLDER, SP	
111	7-685-535-11	SCREW +BTP 2.6X10 TYPE2 N-S	
112	*4-922-529-01	DAMPER	
113	4-917-515-01	ROLLER	
114	*4-922-514-01	BRACKET (BU-5)	
115	4-917-526-01	SPRING, TENSION	
116	4-917-507-01	SPRING (H)	
117	*4-922-516-01	CHASSIS (MD)	
118	7-685-152-19	SCREW, STEP	
120	4-922-511-01	GEAR (LOADING)	
121	4-922-512-01	PULLEY	
123	4-917-522-02	BELT	
124	7-621-775-20	SCREW +B 2.6X5	
125	7-621-770-67	SCREW +BVTT 2.6X6 (S)	
907	*1-626-838-11	PC BOARD, L.MOTOR	
909	*1-626-837-11	PC BOARD, IN/OUT SW	
M251	A-4608-346-A	MOTOR ASSY, L	
S251	1-571-300-11	SWITCH, ROTARY	

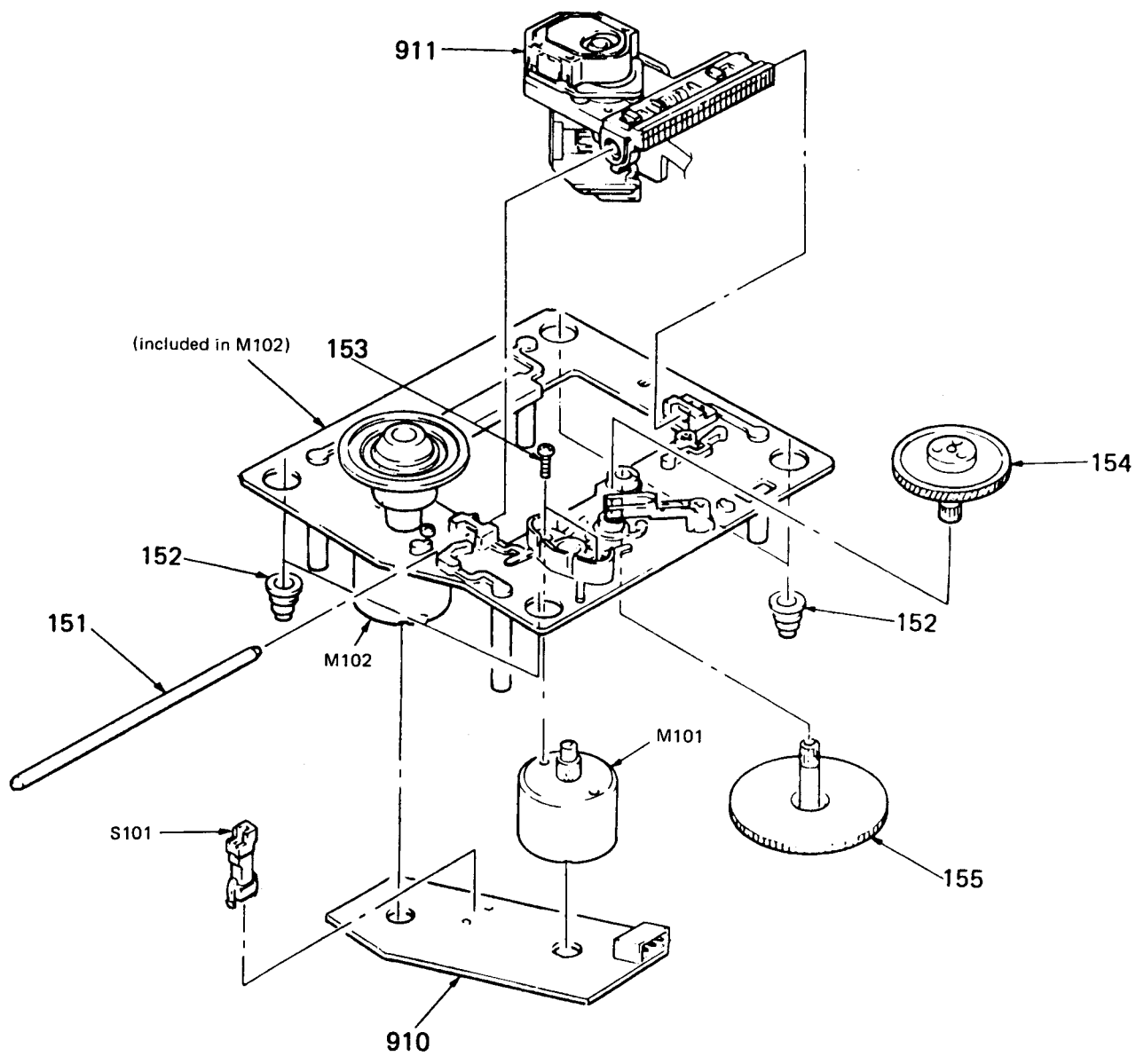


CXA1081S

● IC Block Diagrams

(3) OPTICAL PICK-UP BLOCK (BU-5C)





No.	Part No.	Description	Remarks
115	4-917-526-01	SPRING, TENSION	
116	4-917-507-01	SPRING (H)	
117	*4-922-516-01	CHASSIS (MD)	
118	7-685-152-19	SCREW, STEP	
120	4-922-511-01	GEAR (LOADING)	
121	4-922-512-01	PULLEY	
123	4-917-522-02	BELT	
124	7-621-775-20	SCREW +B 2.6X5	
125	7-621-770-67	SCREW +BVTT 2.6X6 (S)	
907	*1-626-838-11	PC BOARD, L.MOTOR	
909	*1-626-837-11	PC BOARD, IN/OUT SW	
M251	A-4608-346-A	MOTOR ASSY, L	
S251	1-571-300-11	SWITCH, ROTARY	

No.	Part No.	Description	Remarks
151	4-917-565-01	SHAFT, SLED	
152	4-917-562-01	INSULATOR	
153	7-621-255-15	SCREW +P 2X3	
154	4-917-567-01	GEAR (M)	
155	4-917-564-01	GEAR (P), FLATNESS	

No.	Part No.	Description	Remarks
910	*1-626-304-11	PC BOARD, SL/SP MOTOR	
911	⚠8-848-062-01	DEVICE,OPTICS (KSS-150A)	
M101	X-4917-504-1	ASSY, MOTOR (SLED)	
M102	X-4917-523-1	ASSY, MOTOR (SPINDLE)	
S101	1-571-274-11	SWITCH, LEAF (LIMIT IN)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description
901	*1-628-969-11	PC BOARD, DISPLAY (PRC)
902	*1-628-970-11	PC BOARD, SWITCH (PRC)
903	*1-628-971-11	PC BOARD, POWER (PRC)
904	A-4651-227-A	MOUNTED PCB, MAIN
907	*1-626-838-11	PC BOARD, L.MOTOR
909	*1-626-837-11	PC BOARD, IN/OUT SW
910	*1-626-304-11	PC BOARD, SL/SP MOTOR
911	⚠8-848-062-01	DEVICE, OPTICAL KSS-150A(H)

CAPACITOR

Ref.No	Part No.	Description			
C101	1-162-294-31	CERAMIC	0.001MF	10%	50V
C101A	1-106-796-11	MYLAR	0.0022MF	5%	50V
C102	1-124-443-00	ELECT	100MF	20%	10V
C102A	1-106-796-11	MYLAR	0.0022MF	5%	50V
C103	1-162-199-31	CERAMIC	10PF	5%	50V
C104	1-162-199-31	CERAMIC	10PF	5%	50V
C106	1-124-477-11	ELECT	47MF	20%	16V
C107	1-130-477-00	MYLAR	0.0033MF	5%	50V
C108	1-136-159-00	FILM	0.033MF	5%	50V
C109	1-164-159-11	CERAMIC	0.1MF		50V
C110	1-126-233-11	ELECT	22MF	20%	25V
C111	1-136-157-00	FILM	0.022MF	5%	50V
C112	1-136-153-00	FILM	0.01MF	5%	50V
C113	1-126-233-11	ELECT	22MF	20%	25V
C114	1-164-159-11	CERAMIC	0.1MF		50V
C115	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C116	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C117	1-124-902-00	ELECT	0.47MF	20%	50V
C200	1-161-379-00	CERAMIC	0.01MF	30%	16V
C201	1-126-101-11	ELECT	100MF	20%	16V
C202	1-126-101-11	ELECT	100MF	20%	16V
C203	1-164-159-11	CERAMIC	0.1MF		50V
C204	1-164-159-11	CERAMIC	0.1MF		50V
C205	1-162-294-31	CERAMIC	0.001MF	10%	50V
C206	1-162-294-31	CERAMIC	0.001MF	10%	50V
C207	1-164-159-11	CERAMIC	0.1MF		50V
C208	1-136-169-00	FILM	0.22MF	5%	50V
C210	1-164-159-11	CERAMIC	0.1MF		50V
C211	1-164-159-11	CERAMIC	0.1MF		50V
C212	1-126-101-11	ELECT	100MF	20%	16V
C213	1-126-101-11	ELECT	100MF	20%	16V
C215	1-123-875-11	ELECT	10MF	20%	50V
C217	1-136-165-00	FILM	0.1MF	5%	50V
C218	1-123-382-00	ELECT	3.3MF	20%	50V
C219	1-136-159-00	FILM	0.033MF	5%	50V
C220	1-136-165-00	FILM	0.1MF	5%	50V
C221	1-130-479-00	MYLAR	0.0047MF	5%	50V
C222	1-124-499-11	ELECT	1MF	20%	50V
C223	1-124-927-11	ELECT	4.7MF	20%	50V
C224	1-124-477-11	ELECT	47MF	20%	16V
C225	1-162-294-31	CERAMIC	0.001MF	10%	50V
C226	1-162-282-31	CERAMIC	100PF	10%	50V
C227	1-126-233-11	ELECT	22MF	20%	25V
C228	1-162-291-31	CERAMIC	560PF	10%	50V
C229	1-164-159-11	CERAMIC	0.1MF		50V
C230	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C231	1-126-233-11	ELECT	22MF	20%	25V
C232	1-164-159-11	CERAMIC	0.1MF		50V
C251	1-136-157-00	FILM	0.022MF	5%	50V
C301	1-164-159-11	CERAMIC	0.1MF		50V
C302	1-126-233-11	ELECT	22MF	20%	25V
C303	1-161-379-00	CERAMIC	0.01MF	30%	16V
C304	1-124-902-00	ELECT	0.47MF	20%	50V
C305	1-136-159-00	FILM	0.033MF	5%	50V
C306	1-126-233-11	ELECT	22MF	20%	25V
C307	1-164-159-11	CERAMIC	0.1MF		50V
C308	1-164-159-11	CERAMIC	0.1MF		50V
C309	1-126-233-11	ELECT	22MF	20%	25V
C310	1-164-159-11	CERAMIC	0.1MF		50V
C311	1-164-159-11	CERAMIC	0.1MF		50V
C312	1-164-159-11	CERAMIC	0.1MF		50V
C361	1-162-206-31	CERAMIC	20PF	5%	50V
C362	1-162-206-31	CERAMIC	20PF	5%	50V
C382	1-162-286-31	CERAMIC	220PF	10%	50V
C383	1-164-159-11	CERAMIC	0.1MF		50V
C384	1-164-159-11	CERAMIC	0.1MF		50V
C391	1-126-233-11	ELECT	22MF	20%	25V
C392	1-164-159-11	CERAMIC	0.1MF		50V
C393	1-164-159-11	CERAMIC	0.1MF		50V
C801	1-162-207-31	CERAMIC	22PF	5%	50V
C802	1-162-207-31	CERAMIC	22PF	5%	50V
C803	1-164-159-11	CERAMIC	0.1MF		50V
C804	1-126-177-11	ELECT	100MF	20%	6.3V
C805	1-161-379-00	CERAMIC	0.01MF	30%	16V
C901	1-124-898-11	ELECT	4700MF	20%	16V
C902	1-124-893-11	ELECT	2200MF	20%	10V
C903	1-123-875-11	ELECT	10MF	20%	50V
C904	1-123-875-11	ELECT	10MF	20%	50V
C906	1-126-244-51	ELECT	47000MF		5.5V
C911	1-124-898-11	ELECT	4700MF	20%	16V
C912	1-124-473-11	ELECT	1000MF	20%	10V
C913	1-124-927-11	ELECT	4.7MF	20%	50V
C941	1-124-122-11	ELECT	100MF	20%	50V
C942	1-124-122-11	ELECT	100MF	20%	35V
C990	⚠1-162-599-12	CERAMIC	0.0047MF	20%	400V

CN101	*1-564-706-31	PIN, CONNECTOR (SMALL TYPE) 4P
CN102	*1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P
CN201	*1-564-339-61	PIN, CONNECTOR 5P
CN203	*1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P
CN204	*1-564-706-31	PIN, CONNECTOR (SMALL TYPE) 4P
CN256	*1-564-495-11	PIN, CONNECTOR 2P
CN260	*1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P
CN301	*1-564-342-11	PIN, CONNECTOR 8P
CN302	*1-564-336-00	PIN, CONNECTOR 2P
CN701	*1-565-561-11	PIN, CONNECTOR 3P (AU BUS)
CN851	*1-564-499-11	PIN, CONNECTOR 6P
CN901	*1-564-341-11	PIN, CONNECTOR 7P
CN990	⚠1-555-795-00	(AEP, Italian)....CORD, POWER, EULO PLUG
	⚠1-556-562-11	(UK)....CORD, POWER

Ref.No	Part No.	Description
CNJ101	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P
D101	8-719-107-94	DIODE 1SS202-1
D701	8-719-107-94	DIODE 1SS202-1
D901	8-719-200-77	DIODE 10E2N
D902	8-719-200-77	DIODE 10E2N
D906	8-719-107-94	DIODE 1SS202-1
D911	8-719-200-77	DIODE 10E2N
D912	8-719-200-77	DIODE 10E2N
D941	8-719-200-77	DIODE 10E2N
D942	8-719-933-57	DIODE HZS9B2L
D943	8-719-107-94	DIODE 1SS202-1
FLD801	1-519-481-11	INDICATOR TUBE, FLUORESCENT
IC101	8-752-034-00	IC CXA1081S
IC201	8-759-202-01	IC TA7256P
IC202	8-752-035-28	IC CXA-1291P
IC204	8-752-032-33	IC CXA1182S
IC302	8-752-328-62	IC CXD1125Q
IC303	8-752-323-64	IC CXK5816M-12L
IC351	8-759-631-48	IC M50747-146SP
IC352	8-759-820-64	IC LC9600R-183
IC381	8-759-202-13	IC TC74HCU04P
IC391	8-759-977-71	IC GP1F31T (DIGITAL OUT)
IC801	8-752-807-09	IC CXP5058H-192Q
IC901	8-759-630-21	IC M5290P-16
IC941	8-759-602-02	IC M5219P
M101	X-4917-504-1	MOTOR ASSY, SLED
M102	X-4917-523-1	MOTOR ASSY, SPINDLE
M251	A-4608-346-A	MOTOR ASSY, L
PS201⚠	1-532-605-00	LINK, IC
PS202⚠	1-532-605-00	LINK, IC
PS205⚠	1-532-605-00	LINK, IC
PS206⚠	1-532-605-00	LINK, IC
PS901⚠	1-532-675-00	LINK, IC
PS911⚠	1-532-675-00	LINK, IC
Q101	8-729-116-57	TRANSISTOR 2SB1068K
Q205	8-729-820-06	TRANSISTOR 2SD1685
Q206	8-729-820-06	TRANSISTOR 2SD1685
Q701	8-729-820-06	TRANSISTOR 2SD1685
Q702	8-729-900-61	TRANSISTOR DTA114ES
Q801	8-729-902-11	TRANSISTOR 2SC2021
Q901	8-729-820-15	TRANSISTOR 2SB1274
Q911	8-729-808-76	TRANSISTOR 2SD1913SA
Q921	8-729-900-61	TRANSISTOR DTA114ES
Q922	8-729-900-89	TRANSISTOR DTC144ES
Q923	8-729-900-89	TRANSISTOR DTC144ES
Q941	8-729-802-22	TRANSISTOR 2SB1014

RESISTOR

R101	1-247-806-11	CARBON	91	5%	1/4W
R102	1-214-689-11	METAL	22	1%	1/4W
R103	1-249-417-11	CARBON	1K	5%	1/4W
R104	1-249-433-11	CARBON	22K	5%	1/4W
R107	1-247-864-11	CARBON	24K	5%	1/4W
R108	1-249-425-11	CARBON	4.7K	5%	1/4W
R109	1-249-425-11	CARBON	4.7K	5%	1/4W
R110	1-249-432-11	CARBON	18K	5%	1/4W
R111	1-249-432-11	CARBON	18K	5%	1/4W
R112	1-249-441-11	CARBON	100K	5%	1/4W
R201	1-249-393-11	CARBON	10	5%	1/4W
R203	1-249-393-11	CARBON	10	5%	1/4W
R204	1-249-381-11	CARBON	1	5%	1/4W
R205	1-247-882-11	CARBON	130K	5%	1/4W
R206	1-247-883-00	CARBON	150K	5%	1/4W
R207	1-249-381-11	CARBON	1	5%	1/4W
R208	1-247-882-11	CARBON	130K	5%	1/4W
R210	1-247-883-00	CARBON	150K	5%	1/4W
R211	1-249-437-11	CARBON	47K	5%	1/4W
R212	1-249-435-11	CARBON	33K	5%	1/4W
R213	1-249-429-11	CARBON	10K	5%	1/4W
R214	1-249-423-11	CARBON	3.3K	5%	1/4W
R216	1-249-393-11	CARBON	10	5%	1/4W
R217	1-249-438-11	CARBON	56K	5%	1/4W
R218	1-249-424-11	CARBON	3.9K	5%	1/4W
R219	1-249-424-11	CARBON	3.9K	5%	1/4W
R220	1-249-424-11	CARBON	3.9K	5%	1/4W
R221	1-249-424-11	CARBON	3.9K	5%	1/4W
R222	1-247-882-11	CARBON	130K	5%	1/4W
R223	1-249-393-11	CARBON	10	5%	1/4W
R224	1-249-393-11	CARBON	10	5%	1/4W
R228	1-247-896-11	CARBON	510K	5%	1/4W
R229	1-249-435-11	CARBON	33K	5%	1/4W
R230	1-247-889-00	CARBON	270K	5%	1/4W
R231	1-249-440-11	CARBON	82K	5%	1/4W
R232	1-249-429-11	CARBON	10K	5%	1/4W
R233	1-249-414-11	CARBON	560	5%	1/4W
R234	1-249-441-11	CARBON	100K	5%	1/4W
R235	1-215-434-00	METAL	3.6K	1%	1/6W
R236	1-249-433-11	CARBON	22K	5%	1/4W
R237	1-249-441-11	CARBON	100K	5%	1/4W
R243	1-249-432-11	CARBON	18K	5%	1/4W
R244	1-249-432-11	CARBON	18K	5%	1/4W
R301	1-247-903-00	CARBON	1M	5%	1/4W
R303	1-215-469-00	METAL	100K	1%	1/6W
R304	1-215-469-00	METAL	100K	1%	1/6W
R305	1-249-429-11	CARBON	10K	5%	1/4W
R306	1-249-441-11	CARBON	100K	5%	1/4W
R307	1-249-429-11	CARBON	10K	5%	1/4W
R308	1-249-417-11	CARBON	1K	5%	1/4W
R309	1-249-433-11	CARBON	22K	5%	1/4W
R310	1-247-903-00	CARBON	1M	5%	1/4W
R311	1-249-429-11	CARBON	10K	5%	1/4W
R312	1-249-429-11	CARBON	10K	5%	1/4W
R313	1-249-429-11	CARBON	10K	5%	1/4W
R314	1-249-429-11	CARBON	10K	5%	1/4W
R315	1-249-429-11	CARBON	10K	5%	1/4W
R316	1-249-429-11	CARBON	10K	5%	1/4W
R317	1-249-429-11	CARBON	10K	5%	1/4W
R318	1-249-429-11	CARBON	10K	5%	1/4W
R319	1-249-429-11	CARBON	10K	5%	1/4W
R320	1-249-429-11	CARBON	10K	5%	1/4W
R321	1-249-429-11	CARBON	10K	5%	1/4W
R323	1-249-429-11	CARBON	10K	5%	1/4W
R381	1-249-415-11	CARBON	680	5%	1/4W
R701	1-247-895-00	CARBON	470K	5%	1/4W
R845	1-249-429-11	CARBON	10K	5%	1/4W
R901	1-249-425-11	CARBON	4.7K	5%	1/4W
R904	1-249-422-11	CARBON	2.7K	5%	1/4W
R905	1-249-405-11	CARBON	100	5%	1/4W
R911	1-249-425-11	CARBON	4.7K	5%	1/4W
R941 ⚠	1-212-857-00	FUSIBLE	10	5%	1/4W F
R942	1-249-433-11	CARBON	22K	5%	1/4W
R943	1-249-429-11	CARBON	10K	5%	1/4W
R944	1-249-417-11	CARBON	1K	5%	1/4W
R945	1-249-434-11	CARBON	27K	5%	1/4W
R946	1-249-425-11	CARBON	4.7K	5%	1/4W

RV101	1-228-995-00	RES, ADJ, CARBON 22K (E-F BALANCE)
RV102	1-228-995-00	RES, ADJ, CARBON 22K (TRACKING GAIN)
RV103	1-228-995-00	RES, ADJ, CARBON 22K (FOCUS GAIN)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description
RV104	1-228-993-00	RES, ADJ, CARBON 4.7K (FOCUS BIAS)
RV201	1-228-990-00	RES, ADJ, METAL GLAZE 1K (RF PLL FREQUENCY)
S101	1-571-274-11	SWITCH, LEAF (LIMIT IN)
S251	1-571-300-11	SWITCH, ROTARY (IN/OUT)
S801	1-554-303-21	SWITCH, KEY BOARD (1)
S802	1-554-303-21	SWITCH, KEY BOARD (2)
S803	1-554-303-21	SWITCH, KEY BOARD (3)
S804	1-554-303-21	SWITCH, KEY BOARD (4)
S805	1-554-303-21	SWITCH, KEY BOARD (5)
S806	1-554-303-21	SWITCH, KEY BOARD (6)
S807	1-554-303-21	SWITCH, KEY BOARD (7)
S808	1-554-303-21	SWITCH, KEY BOARD (8)
S809	1-554-303-21	SWITCH, KEY BOARD (9)
S810	1-554-303-21	SWITCH, KEY BOARD (10)
S811	1-554-303-21	SWITCH, KEY BOARD (11)
S812	1-554-303-21	SWITCH, KEY BOARD (12)
S813	1-554-303-21	SWITCH, KEY BOARD (13)
S814	1-554-303-21	SWITCH, KEY BOARD (14)
S815	1-554-303-21	SWITCH, KEY BOARD (15)
S816	1-554-303-21	SWITCH, KEY BOARD (16)
S817	1-554-303-21	SWITCH, KEY BOARD (17)
S818	1-554-303-21	SWITCH, KEY BOARD (18)
S819	1-554-303-21	SWITCH, KEY BOARD (19)
S820	1-554-303-21	SWITCH, KEY BOARD (20)
S821	1-554-303-21	SWITCH, KEY BOARD (> 20)
S822	1-554-303-21	SWITCH, KEY BOARD (CHECK)
S823	1-554-303-21	SWITCH, KEY BOARD (CLEAR)
S824	1-554-303-21	SWITCH, KEY BOARD (FILE RECALL)
S825	1-554-303-21	SWITCH, KEY BOARD (EDIT)
S826	1-554-303-21	SWITCH, KEY BOARD (▮▮)
S827	1-554-303-21	SWITCH, KEY BOARD (▶)
S828	1-554-303-21	SWITCH, KEY BOARD (⏏)

Ref.No	Part No.	Description
S829	1-554-303-21	SWITCH, KEY BOARD (C.INDEX)
S830	1-554-303-21	SWITCH, KEY BOARD (CONTINUE)
S831	1-554-303-21	SWITCH, KEY BOARD (FILE)
S832	1-554-303-21	SWITCH, KEY BOARD (▶▶)
S833	1-554-303-21	SWITCH, KEY BOARD (◀◀)
S834	1-554-303-21	SWITCH, KEY BOARD (▶▶I)
S835	1-554-303-21	SWITCH, KEY BOARD (I◀◀)
S836	1-554-303-21	SWITCH, KEY BOARD (SHUFFLE)
S837	1-554-303-21	SWITCH, KEY BOARD (PROGRAM)
S838	1-554-303-21	SWITCH, KEY BOARD (REPEAT)
S839	1-554-303-21	SWITCH, KEY BOARD (AUTO SPACE)
S840	1-554-303-21	SWITCH, KEY BOARD (TIME MEMO)
S841	1-554-303-21	SWITCH, KEY BOARD (■)
S842	1-554-303-21	SWITCH, KEY BOARD (ERASE)
S851	1-571-305-11	SWITCH, PUSH (1 KEY) (POWER)
T990	⚠1-449-558-11	TRANSFORMER, POWER
TB901	*1-535-120-00	TERMINAL
TB990	*1-535-140-00	BASE POST 22MM (10MM PITCH) 3P
TB991	1-535-416-00	TERMINAL
TB992	1-535-416-00	TERMINAL
X301	1-577-157-11	VIBRATOR, CERAMIC (8MHz)
X361	1-567-926-11	VIBRATOR, CRYSTAL (16.9344MHz)
X801	1-567-192-11	OSCILLATOR, CERAMIC (4MHz)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.